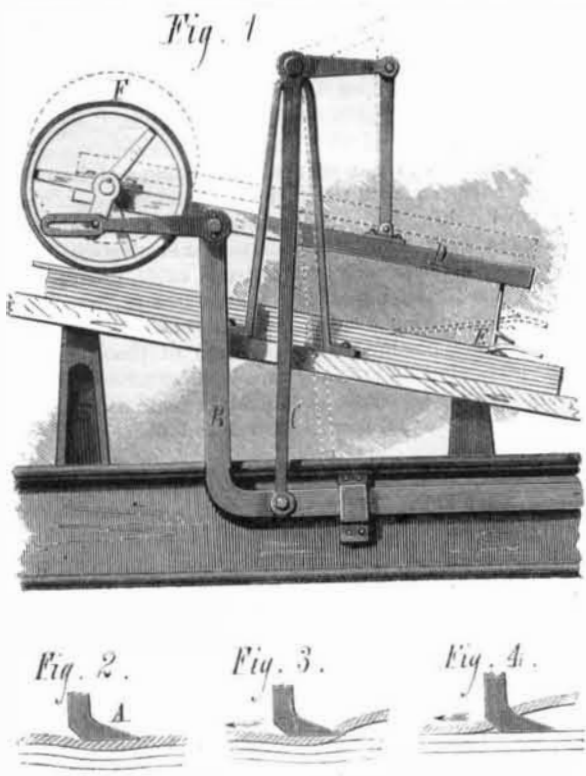


PAPER FEEDING MACHINE.

Our engraving illustrates the essential features of a novel mode of feeding paper to printing presses, recently patented by Messrs. C. E. Baker and S. Schofield. The form of machine depicted is of course not intended to represent the completed device, but simply to show sufficient mechanism to elucidate the novelty and value of the idea. The latter can best be understood by first referring to the small figures, 2, 3, and 4. In Fig. 2, A is a pressing pin or point made blunt at its forward extremity and flat beneath. This, by suitable mechanism, is brought down upon the top sheet of a pile of paper. If now this upper leaf be drawn along from right to left, it is evident that the blunt point of the pin will catch in the paper, as in Fig. 3, and that its motion, continuing the latter, will travel up the pin into the position Fig. 4. Furthermore, only a single sheet will be thus caught: for as the pin penetrates the first leaf, it forces out a small chip, which remains under the flat part of the instrument, effectually preventing it from entering the paper below. The pin then rests with its full holding power on the second sheet; and as the first sheet is drawn along as above described, the friction between the two is insufficient to move the former from under the point. The reader can practically demonstrate this for himself by pressing the flat side of a bevel-pointed piece of wire down upon a few sheets of paper, and then drawing the upper sheet back against the point by the friction of his finger or a piece of india rubber.

From Fig. 1 will be understood a combination of devices for operating the inclined pin and friction pad with each other, so as to raise the sheet from the pile in order to properly present it to the carrying grippers of the press. Motion is imparted to the elbow rod, B, which is carried to the left. The effect of this is first through the upright, C, right angled arm and connecting bar, shown to push down the frame, D, and consequently to press the point at E firmly upon the paper; then, when near the end of its motion, by means of the slotted arm acting on the crank, to rotate the rubber covered roller, F. The revolution of the latter for a very short distance draws, by friction, the upper sheet from right to left, causing it to catch upon the pin in the manner above described. The rod, B, then moves to the right and through the upright, C, raises the entire frame, roller, and all, clear of the paper, so that the relative position of the parts is indicated by the dotted outlines. The pin, it will be noticed,



carries the top sheet up with it. At this juncture the grippers come up, seize the projecting edge of the paper, and, drawing the sheet from the pin, carry it down the incline to the press.

There is other mechanism for keeping the pile of paper at a uniform height, as it is depleted, and also a new method for insuring accurate register, claimed to be perfect, which need not be entered into here. The principal feature is the holding by the pin, which makes a tear in the sheet no greater than that now caused by pointing, which it of course avoids. The puncture can be readily arranged to come in the fold of the sheet or near the edge to be trimmed off in the binding. The device is automatic in its action, and can be so fitted to a press as to require no attention, stopping of its own accord in case of accident or in event of the supply of paper becoming exhausted. The simplicity of the mechanism and its ready adaptability to all requirements enable the machine to be offered at a very moderate price.

Mr. Charles E. Baker, office of the *Independent* newspaper, New York city, will be happy to exhibit his apparatus to publishers interested in paper-feeding machinery.

PROGRESS OF STEAM CULTIVATION.

Mr. Max Eyth, of Messrs. Fowler & Co., of Leeds, England, in a paper recently read before the Council of the Society of Austrian Engineers and Architects, made the following interesting remarks regarding steam cultivation:

The great difficulty in steam plowing is the moving about of engines under all circumstances and conditions. Some twenty years ago, the idea of employing the portable engine, in connection with what is known as the roundabout tackle, was suggested; but although to a degree successful,

the plan proved to be, practically, a mistake. It has lately found some encouragement by the introduction of self-moving anchors, but it is not able to compete with the now more perfect, though at first sight more expensive, systems. The introduction of Fowler's double English tackle, the first of which was constructed in 1863, made steam plowing that which it is today. The advantages of the system are simplicity of plan of working, minimum of hands employed, direct pull of the rope, shortest possible length of the latter, facility of shifting, etc. Steam plowing should not be measured by its cost but by its results, as deep cultivation by steam has a beneficial influence on crops by draining the soil in wet, and by keeping it moist in dry, seasons, by avoiding the footsteps of animals in fields, and by doing the work at the proper time. In hot countries it is in use, especially the West Indies and Egypt, and also in South America and the far East, where steam cultivation is being introduced on a constantly increasing scale, while Germany and Austria have, in the course of the last three years, started in the same direction. Not less than 56 double engine tackles are at present at work in the two latter countries, and the results are so strikingly favorable that the new idea appears to be now firmly established, especially in the beet growing districts of Central Europe.

IMPROVED FISHING ROD.

A common defect in fishing rods is the liability of the connecting portions to become worn by use, so as to be insecure and loosely fitting. This difficulty it is aimed to overcome in the invention represented in our illustration through the medium of the notched metallic cylinder, A, formed upon the smaller ferrule, B, which, when the rod is jointed together, as shown in Fig. 3, fits into the ferrule, C. Around the exterior circumference of the latter is a collet, D, Fig. 4, through which pass three set screws, as shown, which, when turned inwards, lock into the grooves of the notched cylinder. By this means, it is claimed, the separation of the parts of the rod and the annoyance resulting therefrom, while following the sport, are effectively prevented. Instead of the cylindrical grooved extension, a plain conical piece, E, Fig. 2, may be used, which serves the same purpose, and may be made of the same size at all the ferrules of the rod.

The locking screw heads may be formed of any ornamental pattern. A guide ring is attached to the collet, to serve for passing the line to the reel. Fig. 1 represents the rod put together, showing that these improvements occupy but little space, while rather adding to its neat and attractive appearance.

The device has the merit of simplicity, and it may be arranged in connection with any ordinary fishing rod, and may also be applied to jointed poles for all purposes for which such articles are required.

Patented through the Scientific American Patent Agency, July 8, 1873, by William M. Smith. For further particulars address Messrs. Smith & Ermentrout, 318 Penn street, Reading, Pa.

Novel Mode of Locating Obstructions in Pneumatic Tubes.

In London, as in Paris, the telegraphic executive make use, to a large extent, of pneumatic tubes for the transmission of messages, which, packed in suitable cases, are driven through the tubes under pressure; and it not unfrequently happens that one of these cases becomes arrested in its course, causing an obstruction, the locality of which it is very difficult to ascertain.

M. Bontemps, director of pneumatic telegraphs in Paris, has, says *Engineering*, recently devised the following ingeni-

ous method of ascertaining with considerable precision the locality of the block:

At the free extremity of the tube an elastic membrane is placed, and its alternatedistensions are registered on a revolving cylinder by means of electricity. A wave is produced in the tube by detonation of a pistol placed near the membrane. This wave travels through the tube at a speed of 333 meters (1,000 feet) per second, and strikes against the obstacle; there it is reflected back, passes through the tube in a contrary direction, and inflates the membrane; this places the first mark on the revolving cylinder. The sound wave sent back by the membrane against the obstacle is reflected a second time, and a second mark is obtained on the cylinder. To determine the distance between the membrane and the obstacle, it will only be necessary to know the interval of time that has elapsed between registering the two marks on the cylinder. The half of this interval (reckoned in seconds) multiplied by 333, gives the distance required. The time is calculated by an ordinary chronograph, with three tracing points worked by a magnetic needle.

The first is placed in the circuit, which is closed by the alternate distensions of the membrane.

The second answers to an electric governor, and marks the seconds on the cylinder.

The third divides the second into periods of equal duration to the second, by means of the pulsation of an electric needle.

These vibrations are not absolutely isochronous, but are sufficiently so for the object in question; or if it were thought necessary to have the isochronism perfect, the vibration of a diapason could be used. The following example illustrates the operation of the instrument: An obstacle is placed in a line at a known distance, say, of 186 feet. The needle oscillates 33 times per second, the interval included between the two marks determined by the pistol shot corresponds to 120 oscillations, and the distance of the obstacle will be

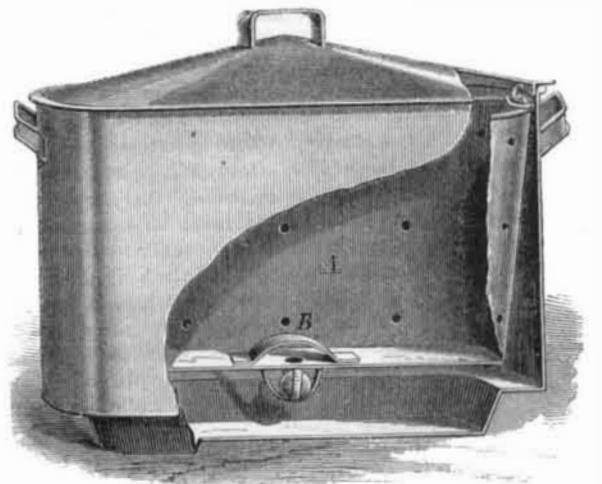
$$D = \frac{1}{2} \times 330 \times \frac{12}{33} = 60 \text{ meters (180 feet).}$$

The approximation obtained is thus 6 feet. But in practice this method gives approximation of 9 feet, and consequently only one opening in the pipe is required.

"THE PEOPLE'S" STEAM WASHER.

The principal advantage of the invention herewith illustrated consists in its ready adaptability to any ordinary cooking stove wash boiler, without regard to size or shape, so that the owner of one of the latter vessels need only procure an attachment thereto instead of incurring the expense of an entirely new apparatus.

The device consists in an inner receptacle, A, which fits tightly at its upper edge, and is thus sustained within the usual form of wash boiler represented. Its sides incline inwards toward the bottom, leaving an intermediate chamber between the two vessels, and are perforated with a number of holes. At the bottom is an aperture covered with a shield, B, to prevent its becoming clogged by the clothes; beneath



is a ball held in wires or similar contrivances by which its movement is limited. It will be noticed that the inner vessel, A, fits into the boiler steam tight, and that it may be readily lifted in or out, for cleansing or other purposes, by the handles, one of which is shown at C.

In operation, the clothes are folded and packed into the inner receptacle, which is then lifted by its handles into the boiler, a sufficient quantity of soap and water being previously placed in the bottom of the latter. On being set upon the range, the steam fills the intermediate chamber, being unable to escape through the orifice at the bottom and so enter the vessel, A, from the ball rising and closing the opening. The steam is therefore compelled to pass through the holes in the sides of the last mentioned receptacle, and thus reach and force its way through the clothes. When condensed, it passes down through the hole in the bottom of the washer, into the outer boiler, thus causing a constant circulation of steam and heated water, which, it is stated, speedily effects the cleansing of the garments.

Although this invention is based on the same principle as many that have heretofore been illustrated in our columns, it differs in construction from previous devices in the detachability of the inner washer, which can thus be purchased separately. The apparatus is therefore cheaper at the outset, and, besides, presents facilities for cleaning and repair which similar appliances made in parts inseparably connected necessarily do not possess.

Patented in Canada, May 5, 1873. Application pending in the United States. For further particulars address J. R. Davidson & Co. Halifax, Nova Scotia.