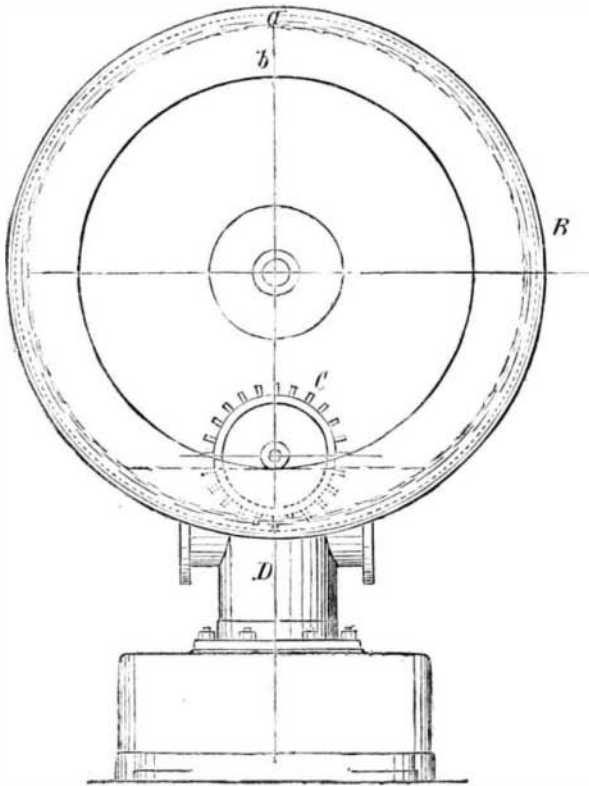


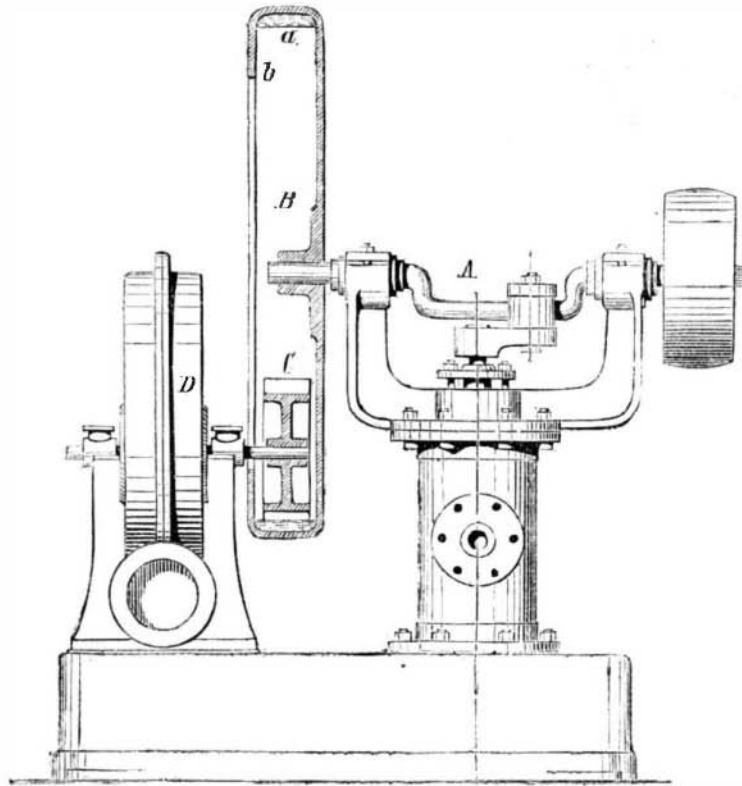
**A WATER BELT FOR TRANSMITTING MOTION.**

A curious mode of transmitting motion by means of a water belt is represented in the annexed engraving, which we extract from the *Revue Industrielle*. The device is that of an English inventor, Mr. J. Robertson, and is said to work with perfect freedom from noise and vibrations. The piston of the engine is connected with the driving shaft, A, on one extremity of which is attached a large hollow pulley, B. The outer face of the latter is cut away, from the center so as to leave only a flange of the width shown at *b*. Through the opening passes the shaft of a fan blower, D, on which, and inside the hollow pulley, is a pallet wheel, C. The pallets on the latter do not touch the inside of the hollow pulley.

In operation the water, *a*, of which a small quantity is placed in the pulley, B, is caused, by centrifugal force, to spread itself against the inner periphery, and to be carried around with the wheel. Into this water, as shown in the sectional view on the left, the pallets on wheel, C, dip, and are thereby acted upon by the force of the same, causing the wheel, C, to rotate. The hollow pulley is of sheet iron, and is revolved at the rate of 500 turns per minute. No water whatever, it is stated, is ejected from the apparatus, and it is only necessary to supply the small amount lost by evaporation to keep the device in working order.



loon attained a great altitude. The unfortunate inventor had constructed a pair of wings made of cane and silk, each 37 feet long by 4 feet wide, and also a tail 18 by 3 feet in dimensions. The wings were inserted into two hinged frames, which were attached to a wooden stand, upon which the aeronaut stood and manipulated them by means of levers. The theory was that, when started from any high altitude, the machine would reach the earth by a very gentle incline, passing over a great distance and eventually landing without concussion. At a first trial of the device, on being



**Patented Car Improvements.**

There were one or two points in the proceedings of the Car Builders' Association, at its late meeting, in which a peculiar sensitiveness was developed about discussing the merits of patented devices. The impression seemed to prevail with many of the members that such devices were not only inadmissible as legitimate topics for discussion, but that committees, in making their reports, must not indorse or recommend any such devices for adoption, no matter what might be their actual merits. This, in our judgment, is a mistake which cannot be too soon corrected: nor do we think that, in order to do so, any alteration of the constitution of the Association is necessary. That instrument, as it is now, merely forbids the admission of patentees or their agents to advocate their claims at any of the meetings of the society, but does not prevent the members from freely expressing their views in the regular course of discussion upon any invention or device, whether patented or not. To suppress all discussion with respect to patents would seriously hamper the Association in the exercise of its proper functions, and so far destroy its usefulness. It must necessarily be progressive, or disband. It is not the business of the Association to make or un-

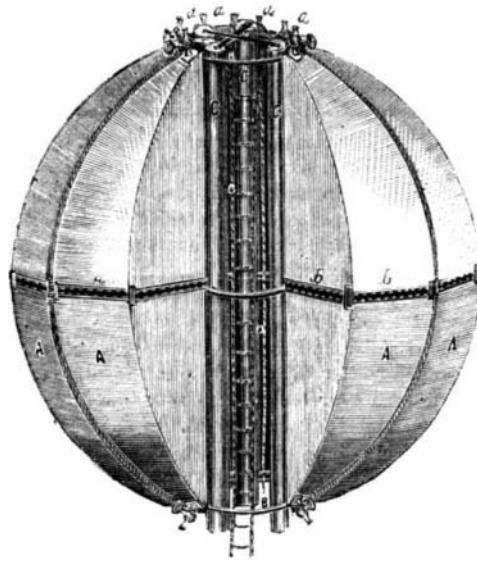
**WATER BELT FOR TRANSMITTING MOTION.**

dropped from a balloon, the earth was reached in safety, but on the present repetition of the experiment, De Groof seemed to lose control of his wings, and the apparatus collapsed and fell, dashing the man to pieces on the street pavement below.

**A NEW SECTIONAL BALLOON.**

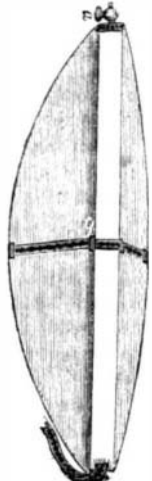
Mr. James Hartness, of Detroit, Mich., has recently patented a novel form of balloon, the main object of which is to prevent accidents due to bursting while in the air. In-

Fig. 1.



stead of making a single globe, he constructs the body of the balloon in sections, exactly similar to those of an orange, each one of which is inflated separately, and all joined together complete the sphere. A section is shown separately in Fig. 2, and several joined together in Fig. 1. An axial opening is left at the extremities, at the middle of which the sections, the inner edges of which are made of suitable shape for the purpose, are connected by straps, *b*. Through this opening a rope ladder extends, so that the aeronaut may have access to all the valves, one of which is arranged in each section. The poles shown passing up through the aperture are designed as a support for the balloon during the process of inflation.

Fig. 2.



It will be seen that, owing to the small amount of pressure which each section has to withstand, the fabric may be made much lighter than would be necessary in a balloon of corresponding size constructed in the usual way, while, as in compartment ships and sectional boilers, a rupture occurring at any point is confined to a single section, the others, remaining uninjured, retaining their buoyancy.

make the fortunes of inventors or patentees, or to discriminate between rival claims, except on the score of actual merit, and as the interests of railroads may be affected thereby. If the Miller platform or the Westinghouse brake is a good device now, let it be indorsed and approved; but as soon as either is surpassed by something better, let it be condemned. There is no evading this obvious duty. The Association has got to recognize patented inventions and pronounce upon their respective merits, so far at least as they apply to railway cars, or be exposed to comment and criticism, such as may be found in the *SCIENTIFIC AMERICAN* of July 18.—*National Car Builder.*

**Soils and Fertilizers.**

Turfy loam, being rich in decomposing vegetable fiber, forms a soil acceptable to almost all families of plants, forming, as it were, the staple or ground work to which other soils or ingredients may be added. Some cultivators, says a correspondent of *The Garden*, prefer using turfy loam as soon as it is taken from the field or pasture, to form the principal ingredient in the formation of vine borders, and for melon culture, etc., justly considering that many of its useful properties are wasted, by its retention, of perhaps years, in the soil yard, before it is supplied to growing plants. It is obvious, however, that it would be inconvenient for the cultivator to have to repair to the field or pasture supposing that he had permission to do so, whenever he might require even a small portion of this soil; and most plant grower will only be too glad to take an opportunity; when it offers itself, to lay in a stock of this soil to last them for several years.

When this is carted into the soil yard, it should be stacked up in the form of a ridge, and might, with advantage, be thatched with some littery material, so as to prevent it from becoming saturated with cold rains during winter, or from being desiccated during dry summer weather. If a portion of good farmyard manure can be secured simultaneously with this soil, a layer of the same might be made to alternate with a layer of the loam, and this would form a most useful compost for many purposes; as, when it had laid some six or more months, it would then be found to be in excellent condition, without further additions, to use for the potting of fruit trees of various sorts, strawberries, roses, and other kinds of plants requiring a rich and somewhat tenacious soil; while, to render it suitable for other varieties of plants, river or silver sand, leaf mold, peat, etc., could be added in the proportions required.

**PEAT, LEAF MOLD, AND OTHER MATERIALS.**

In establishments where collections of heaths and other hard-wooded plants are cultivated, "fibery peat" soil is indispensable; and, in many parts of the country, peat, of the desired quality, is exceedingly difficult to procure. The black bog soil, which is sometimes substituted for it, is absolutely worthless, and any attempt to cultivate hard-wooded plants in such material will be sure to end in failure. Where good peat cannot be found, it is always advisable to purchase it from nurserymen or others who may be in a position to supply it, and this can always be done for a trifling outlay. The best description of peat generally contains more or less silver sand; but, if found to be in any degree deficient in this respect, sand can then be added to

**American Inventive Genius.**

In Switzerland no patent law exists, much to the disgust of native inventors, who are obliged to seek protection for their improvements in this and other countries. Mr. Adolph Ott, a native of Switzerland, but long resident in New York, is now at home, laboring to procure the passage of patent laws by the Diet, and has lately published at Zurich a pamphlet on the subject, in which he makes the following tribute to the inventive genius of America:

"No nation can boast of having accomplished so much towards the general progress of industry as the American. If you make inquiries about the origin of the most important improvements in any branch you please, you will find in five cases out of ten that it was made on the other side of the ocean. In our boasted watch industry the substitution of machines for manual labor took place only through the impulse given by Americans. The modern system of grain mills is of Yankee origin, and so is the whole india rubber industry. The present system of the construction of iron bridges is the result of American genius. Look at the boring machine that performs its work at the St. Gothard tunnel uninterruptedly; it came to us from the other side of the ocean, and so did the system of electric blasting. As to the printing telegraph, it is due to Professor Samuel F. B. Morse, an American who died recently. The system of railways like that on the Righi Kulm, which promises to be of so much importance to Switzerland, was invented by Mr Sylvester Marsh, a New England man. With regard to fire arms, the United States has presented us with the most important improvements. The best wood-working machinery is of American origin, this being also the case with numerous agricultural implements, not to speak of household machines. To a western man, Mr. Samuel Danks, we owe the mechanical puddler, an invention in the manufacture of iron which is only second in importance to that of Bessemer. In an article in the *Journal of the International Exposition*, the well known engineer Perels calls the American machines for making tools sent to the Vienna Exhibition "perfect instruments of precision," and according to him the hand saws are distinguished by a truly astonishing form and accuracy. In the making of scientific instruments, the United States are equally advanced. To Professor Jno. W. Draper we owe entirely new self-registering meteorological instruments, which, though more simple, are not less accurate than the best in use in Europe. The American watches compete already to a considerable extent with the Swiss and English. In view of this entirely unparalleled inventive activity, an American was not quite wrong in saying, in the International Patent Congress in Vienna: "It has been stated from the opposite side that a German had invented printing when there was no patent law. This is true, but it required three centuries thereafter to invent the printing machine. Surely in America, it would not have required over five years."

**The Perils of Flying.**

M. De Groof, the flying man, lost his life recently at London, England. He had ascended in a balloon, and his part of the performance was to fly down to the earth after the bal-